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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/612,723

07/02/2003

Allan Chertok

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09/22/2004

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EXAMINER

JONES, JUDSON

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/612,723

Applicant(s)

CHERTOK, ALLAN

Examiner

Judson H. Jones

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-10 and 31-51 is/are allowed.
- 6) ☒ Claim(s) 11, 15-19, 21 and 25-27 is/are rejected.
- 7) ☒ Claim(s) 12-14, 20, 22-24 and 28-30 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/30/03</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

Claims 11, 18, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hazelton 6,313,551 B1 in view of "A Summary of Twenty Years Experience with Linear Motors and Actuators" by Robert Redlich (of record). Hazelton discloses a linear electric motor having a coil 12, a core 22 and an element 20 with magnets 40 and 42. Hazelton discloses a fixed magnet assembly but mentions in column 4 lines 26 ½ to 31 ½ that the magnet assembly could be made movable. The Redlich article teaches on page 1 that sliding and flexing contacts to the coil are a problem and states on page 3 that Sunpower has used a moving magnet design for ten years after having experimented with moving coil and moving iron types of motors. Since Redlich and Hazelton are from the same field of endeavor it would have been obvious at the time the invention was made for one of ordinary skill in the art to have utilized a moving magnet type embodiment in order to avoid sliding or flexing contact problems.

In regard to claims 18, 19 and 21, the three magnets are viewed as being the three closest to the right hand side of the page. (While Hazelton discloses more than three magnets, claim 11 does not recite that the movable element only has three magnets.)

Claims 15 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hazelton as modified by Redlich as applied to claims 11 and 21 and further in view of von der Hyde et al. 4,528,466 A. Hazelton as modified by Redlich discloses the linear electric motor but does not disclose a core including two halves making a clam-shell type arrangement. Von der Hyde discloses clam-shells as shown in figure 10 and as described in column 4 lines 57-68. Since von der Hyde and Hazelton as modified by Redlich are from the same field of endeavor it

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would have been obvious at the time the invention was made for one of ordinary skill in the art to have utilized half shells in the construction of the motor in order to reduce the expense of making the motor by avoiding the problem of accurately fitting motor parts on the inside of a cylindrical shell.

Claims 16, 17, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hazelton as modified by Redlich as applied to claims 11 and 21 above, and further in view of van Eijk et al. 5,172,160 A. Hazelton as modified by Redlich is the linear electric motor but does not disclose a spring magnet for positioning the movable part of the motor. While Hazelton does not disclose any means for initializing the motor, it is well known in the art that motors used in applications such as photolithography require that the motor start from or return to an initial position. Van Eijk et al. teaches using a spring magnet to initialize a linear motor in column 14 lines 16-25. Since van Eijk et al. and Hazelton as modified by Redlich are from the same field of endeavor it would have been obvious at the time the invention was made for one of ordinary skill in the art to have utilized an initializing means for the motor and in particular, to have used a spring magnet in order to avoid the problem of a mechanical spring weakening over time as the spring is compressed.

In regard to claims 17 and 27, the movable member of Hazelton is one long piece of magnets joined together. Any spring magnet will necessarily urge the magnetic movable piece to align with the spring magnet.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 52 is rejected under 35 U.S.C. 102(e) as being anticipated by Kawano et al.

6,653,753. Kawano et al. discloses a core 23 around a coil 22 as shown in figure 3(a) where a movable member linearly reciprocates and where the core is formed from a soft, magnetic substance as described in column 8 lines 34-37.

Allowable Subject Matter

Claims 12-14, 20, 22-24 and 28-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1-10 and 31-51 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not disclose or teach a linear motor having only first, second and third magnets on a moving member in combination with the other features of claim 1. The prior art of record does not disclose or teach a movable member where none of the magnets included with the movable element has a north pole oriented radially inward in combination with the other features of claims 12 and 22. The prior art of record does not disclose or teach each magnet having an annular shape in combination with the other features of claims 13, 23, 24 and 28. In the Hazelton device the 2nd and 4th magnets from the right hand side of the page are combinations of arc shaped magnets assembled in the shape of an annular ring. The prior art of record does not disclose or teach a soft magnetic sleeve inside the magnets in combination with the other features of claim 14. The prior art of record does not disclose or teach each magnet

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having a length greater than one-half a peak displacement of the movable member in combination with the other features of claims 20, 30 and 31. The prior art of record does not disclose or teach first, second and third annular magnets in combination with the other features of claim 28. The prior art of record does not disclose or teach a 4th magnet positioned in the gap of the core in combination with the other features of claim 41.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Judson H. Jones whose telephone number is 571-272-2025. The examiner can normally be reached on 8-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JHJ 9/17/2004


THANH LAM
PRIMARY EXAMINER